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Magnetic Cobalt and Cobalt Oxide Nanoparticles in Hyperbranched Polyester Polyol Matrix

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Abstract

© 2017 O. I. Medvedeva et al. A series of cobalt (Co) and its oxides based nanoparticles were synthesized by using hyperbranched polyester polyol Boltorn H20 as a platform and sodium borohydride as a reducing agent. UV, FT-IR, XRD, NTA, and TEM methods were employed to obtain physicochemical characteristics of the products. The average diameter of Co nanoparticles was approximately 8.2±3.4 nm. Their magnetic properties, including hysteresis loop, field-cooled, and zero field-cooled curves were investigated. The nanoparticles exhibit superparamagnetism at room temperature, accompanied by magnetic hysteresis below the blocking temperature.

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